

Scale-Up: PLTW Engineering

Overview: Funding will assist Iowa schools in implementing and expanding Project Lead The Way's Engineering program by providing tuition for Principles Of Engineering (POE) Core Training for one teacher as well as six VEX PLTW Engineering Robotics Kits.

Program Summary:

[Project Lead The Way](#) (PLTW) is a nonprofit organization and the nation's leading provider of science, technology, engineering, and math (STEM) programs. PLTW's world-class, activity-, project-, and problem-based curriculum and high-quality teacher professional development model, combined with an engaged network of educators and corporate partners, help students develop the skills needed to succeed in our global economy. PLTW's rigorous and relevant curriculum is collaboratively developed and consistently reviewed and improved by PLTW staff, teachers, university educators, industry experts, and school administrators. It leverages an innovative, project-based approach, fostering collaboration and building critical thinking skills.

PLTW has experienced tremendous growth nationwide in recent years. In Iowa, exponential growth has occurred due to PLTW's robust statewide support network that includes all three Board of Regents Iowa Institutions (UI, ISU, and UNI), all 15 Iowa community colleges, the Iowa Department of Education, the Iowa Department of Economic Development, corporations, and foundations. PLTW is uniquely positioned to address Iowa's workforce needs and build a pipeline of STEM professionals by the scale-up of its programs in the state. PLTW's national infrastructure and strong statewide team is a proven effective model in supporting PLTW programs in Iowa.

Project Description/Objectives:

- Ensure awareness of PLTW within all Iowa school districts by Summer 2015.
- Increase participation in PLTW programs within Iowa schools by 20% by Fall 2014.
- Increase Iowa student participation in PLTW programs and their understanding of STEM content.
- Increase the number of Iowa students pursuing STEM-related degrees and careers.

Grade Levels: 9-12

What is Provided by the Project:

This project will provide selected high schools with teacher training for [PLTW Engineering](#): Principles of Engineering (POE). Schools need to send one new teacher to Core Training. This project will also provide six VEX PLTW Engineering Robotics Kits. These kits will provide schools with two-thirds of their initial material-related costs for up to 24 students per class period. These kits will be shipped directly to each selected school. The schools will also receive a specific PLTW Purchasing Manual containing a detailed outline of all one-time and consumable equipment and supplies (including estimated costs, quantities, and potential vendors) for the PLTW Engineering POE course.

What is Required by the School or Local Education Agency (LEA) in Order to Implement This Program:

- Review the [PLTW Register Now](#) webpage and understand the [PLTW Engineering Program Requirements](#).
- If not already registered, register the school district and participating schools through the PLTW online registration process. Select a District Administrator and School Administrator (for each school) to serve as the main points of contact with PLTW and be responsible for providing and maintaining accurate data and information. Upon registration, the District Administrator will receive an email with a link to the [PLTW Agreement](#). Registration does not commit the school district or school to implement PLTW.
- Review the PLTW agreement with the school board, superintendent, and legal department to ensure all parties are aware of district and school responsibilities. After obtaining the authorized signatures, email the agreement to the PLTW School Support Team.
- Execute LEA Agreement with PLTW as a part of the Scale-Up before attending Core Training.
- Select a teacher to instruct the PLTW Engineering course, Principles Of Engineering (POE). Teachers should be excited to teach a project-based curriculum and meet the requirements of the PLTW agreement. Once the teacher is selected, the School Administrator will register the teacher in the PLTW database.
- Register for Core Training at the University of Iowa College of Engineering. Once the teacher is added to the PLTW database, they can register for POE Core Training (two-week training). Teachers must successfully complete all required online PLTW Engineering Readiness Training modules prior to attending Core Training. Teachers must successfully complete and pass Core Training for every PLTW Engineering course they wish to instruct.
- Purchase necessary equipment and supplies. Review the provided PLTW Engineering POE Purchasing Manual and order the necessary items for the course. Start the ordering process early to ensure the lab is fully equipped before the new school year.

Website to View Program and Standards Alignment: <http://alignment.pltw.org/site/index>

Program Video: https://www.youtube.com/watch?v=L-PvK9sbh_E&list=PLcCTPHuIP75L4OB5bdEifmryWewqxbXRT

2014 Iowa PLTW Engineering Scale-Up Step-By-Step Info Sheet

1.	New or Existing PLTW School Districts Review the Details of the PLTW Engineering Program Requirements & the Iowa Governor's STEM Advisory Council's 2014-15 STEM Scale-Up Program Information & Requirements	<ul style="list-style-type: none"> ❖ If this is your district's first PLTW program, please review the PLTW New District Registration page carefully. The page includes information about the duties of key district & school contacts, information needed to register, how to designate PLTW teachers and enroll them in professional development opportunities, plus equipment & software information for all of our PLTW Programs. This page also includes information on the PLTW Agreement and PLTW Program Requirements. Note the helpful links in the gray-shaded box on the right-hand side of the page. ❖ If your school district already has one or more PLTW programs, please review the PLTW Existing District Registration page carefully. The page includes information on key district & school contacts, information needed to register new PLTW district schools versus having an existing PLTW school add a Program. Plus information on PLTW Teachers, PLTW Program Requirements, Professional Development, and equipment & software information for all of our PLTW Programs. Note the helpful links in the gray-shaded box on the right-hand side of the page. • New or Existing PLTW Districts need to review the PLTW Program Requirements PDF to understand the commitment required to implement the PLTW Engineering program as part of the Iowa STEM Scale-Up PLTW Engineering: Principles of Engineering (POE) opportunity. • New or Existing Districts should also review the provided <i>PLTW Engineering: POE Materials List</i> PDF. • Refer to the Governor's STEM Advisory Council's 2014-15 STEM Scale-Up Programs webpage for more information about the Iowa Scale-Up initiative, Scale-Up application process, & program information for the 2014-15 Scale-Up programs. <p>PLEASE NOTE: All Scale-Up award commitments for FY 2015 (academic year 2014-15) are contingent on continued funding by the Iowa legislature. (Number 13 in this document provides additional discussion on this topic.)</p>
2.	School District/School(s) Registers for PLTW Engineering Program, & Assigns District & School Administrators	<ul style="list-style-type: none"> • If your school district and/or school is not already registered with PLTW, please visit the PLTW Register Now webpage to start the registration process. • Assign a District Administrator & School Administrator (for each school). These individuals will serve as the main points of contact with PLTW & be responsible to provide & maintain accurate data. A table of PLTW Systems User Roles and Permissions can be found here.
3.	School District Reviews, Signs & Returns PLTW Agreement	<ul style="list-style-type: none"> • Upon PLTW school registration, the District Administrator (DA) automatically receives an email with a link to the PLTW Agreement (PLTW Agreement sample). • Review the PLTW Agreement with school officials to ensure all parties are fully aware of district & school responsibilities. • After obtaining the authorized signatures, email the signed agreement to the PLTW School Support Team (schoolsupport@pltw.org). • The \$3000 annual PLTW Engineering Participation Fee will be invoiced to the school in May to be paid by August 31st. Please see the PLTW Participation Fee FAQ for more information.

4.	School District Identifies Prospective Teacher to instruct PLTW Engineering: POE Course and School Reviews PLTW Engineering: POE Course Outline & Alignments	<ul style="list-style-type: none"> • School district selects a teacher(s) to instruct the PLTW Engineering: POE course. Select teachers excited to teach a project-based STEM learning curriculum & also meet the requirements outlined in the PLTW Agreement. • It is recommended that the School Administrator & prospective PLTW teacher review the detailed course outline for the PLTW Engineering: POE course. Reviewing the course outline builds shared familiarity & understanding regarding course topics, concepts, objectives, & sequence. • A detailed PLTW Engineering: POE course outline can be requested at Engineering Course Outline Request. An automated email will be sent with requested outlines attached. • PLTW high school courses and middle school courses are aligned to the Common Core State Standards for Mathematics and English Language Arts and Next Generation Science Standards. Utilize the dynamic interface of the PLTW Standards and Objectives Alignment Tool to create alignment based on user-set parameters.
5.	Prospective teacher(s) added and “attached” to the School via the PLTW Extranet	<p>The PLTW School Administrator (SA) verifies and adds prospective teacher to the school district through the PLTW Extranet. Below are the steps a SA follows within the extranet to add one or more new teacher(s) to a registered school.</p> <ol style="list-style-type: none"> 1. Click on the "SCHOOLS" icon on left-hand side of the screen 2. Select the appropriate school 3. Scroll down to "Teachers" & select "Add New" 4. Click in the "Contact" dialogue box & enter the teacher's first name, last name, & email address. Then click "Add as NEW contact" 5. Click "SAVE" and a dialogue box appears asking you to select a password* for the newly added teacher. *Make the password generic, i.e. teacher's last name or "welcome" in the event they lose it. 6. Click "Create Login" and the teacher will be sent a generated email providing them with login & password for the Teacher Console on the PLTW Extranet.
6.	PLTW-Registered Teachers are provided access to their Three-Phase Professional Development Model—Readiness Training, Core Training, and Ongoing Training & access to the PLTW LMS	<ul style="list-style-type: none"> • PLTW's Three-Phase Engineering Professional Development Model—Readiness Training, Core Training, and Ongoing Training, provides teachers with learning opportunities that emphasize proper preparation, in-depth training, and continuing education. • Readiness Training—will open to Core Training-registered teachers on April 15th, 2014. Instructions on accessing the readiness training will be included in teacher's registration confirmation emails. This PD focuses on preparation and awareness to ensure that teachers have basic technical and content knowledge prior to participating in pedagogy, skill, and knowledge enhancement training experiences. Successful completion of Readiness Training is required before a teacher can attend Core Training. • Core Training—focuses on building awareness and confidence related to STEM education; activity-, project-, and problem-based learning; the roles of the teacher and student as they relate to instruction; and unit-specific STEM content. Core Training is a collaborative, in-person training experience offered at PLTW Affiliate Universities across the nation and facilitated by PLTW Master Teachers and Affiliate Professors. After successfully completing Core Training, teachers can access the National Engineering Professional Learning Community (PLC), unit-specific student and classroom instructional resources, and Ongoing Training resources all offered on PLTW's LMS. • Ongoing Training—consists of self-paced and live online e-Learning resources that provide enhancement opportunities and ongoing learning for educators.

7.	The myPLTW site and the Learning Management System (LMS)	<ul style="list-style-type: none"> • PLTW curriculum and professional development are only available through the PLTW Learning Management System (LMS), which teachers and students access through myPLTW. • The myPLTW site is a one-stop shop for all applications and tools for your PLTW program. Currently it includes access to score reporting, student data tools, and the PLTW Learning Management System (LMS). • The PLTW Learning Management System (LMS) is an online educational management system which delivers curriculum, professional development, and interaction between teachers and students. • Teachers gain course access for each PLTW course where they have attained professional development credit. • Teachers must roster their students via the LMS in order for the students to access the LMS. • Some school Internet firewalls may not allow access to the PLTW LMS site at https://pltw.instructure.com/. If you experience access issues, ask your school IT Administrator to whitelist this URL. • If you have any questions or need further information, please contact schoolsupport@pltw.org. <p>Find instructions on how to access your PLTW course in the LMS listed on the last page of this document.</p>
8.	Teacher Registers for PLTW Engineering: POE Core Training Institute at UI College of Engineering July 20-August 1, 2014	<p>To register for Core Training, a teacher logs into the PLTW Extranet and chooses The University of Iowa option for PLTW Engineering: Principles Of Engineering Core Training Institute (CTI) in Iowa City, Iowa from July 20-August 1, 2014.</p> <p>The PLTW University Affiliate - University of Iowa webpage provides training site contact information & CTI details.</p> <p>This PLTW Engineering Scale-Up award provides PLTW Engineering: POE teacher training for one teacher per selected school.</p> <ul style="list-style-type: none"> • 2014 PLTW Engineering: POE Core Training lasts two weeks. • Teachers must successfully complete & pass Core Training for each individual PLTW Engineering course their school wishes to implement and the teacher wants to instruct. • The PLTW Engineering: POE CTI course must be attended during Summer 2014 per the Iowa PLTW Engineering Scale-Up award requirements AND the POE course must be offered at the school for the 2014-15 school year. • A PLTW welcome letter will be sent to all registered teachers with course login information, as well as a list of required tasks which must be complete before the first day of Core Training. • INCLUDED with award: <ul style="list-style-type: none"> ○ Tuition, parking, and dining card (for lunches) for one 2-week Core Training session at The University of Iowa. <p>NOTE: Schools are not responsible for paying the CTI tuition fees to UI—this payment will be handled by PLTW.</p> <ul style="list-style-type: none"> • EXCLUDED from the award: <ul style="list-style-type: none"> ○ Lodging plus an additional dining card (for breakfasts & dinners) may be purchased through University of Iowa for \$700 per the 2-week Core Training session. ○ Transportation costs (i.e. mileage, rental car) ○ Teacher stipends/salaries. • Please contact Kandace Munson at the UI College of Engineering for more details at kandace-munson@uiowa.edu.

9.	Teachers Complete All Required Readiness Training & Core Training preparation tasks.	<p>Teachers are required to:</p> <ol style="list-style-type: none"> 1. Download, install, & launch all software on LMS prior to arriving at Core Training. 2. All Readiness Training Modules must be completed by 11:59 pm on the Thursday prior to the specific Core Training event for which a teacher is registered. Modules are designed to ensure that participants have basic course content knowledge & technical skills. 3. Obtain all required training equipment & supplies <ol style="list-style-type: none"> a. Laptop which meets or exceeds PLTW Computer specifications. b. External mouse c. Ethernet cable (10-15 feet in length) d. Jump drive e. Digital camera or cell phone camera &/or webcam & any necessary equipment needed to download pictures to laptop. Ability to take video is optional, <u>but highly recommended</u> f. Pens, pencils (mechanical preferred) with erasers, & highlighters g. Scientific calculator (basic 2 line display) h. Closed-toed shoes (for lab work & tours) i. Headphones to plug into computer 4. Arrive with a positive attitude & a good sense of humor. 😊
10.	Review PLTW Engineering POE Materials List, Inventory Current School Supplies, & Make Necessary Equipment & Materials Purchases	<ul style="list-style-type: none"> • Included PLTW Engineering Scale-Up award materials: <ul style="list-style-type: none"> ○ Six VEX PLTW Engineering Robotics Kits. These kits provide schools with two-thirds of their initial material-related costs & adequately outfit one lab with the robotics equipment needed for up to 24 students (one kit per four students) per section. ○ A detailed POE list of materials outlining all other one-time & consumable equipment and supplies (including estimated costs, quantities, & potential vendors) necessary to implement one section of POE will be provided to you. • Excluded PLTW Engineering Materials NOT included as part of the PLTW Engineering Scale-Up award: <ul style="list-style-type: none"> ○ Costs associated with other equipment & supplies necessary to implement POE. Many of these materials are items that schools may already have in a typical lab classroom – i.e. scissors, paper cutter, storage cabinet, tape measures, etc. ○ PLTW Engineering Participation Fee of \$3000 per year includes access to all the class program features for which a school has a trained teacher, including, but not limited to, access to the PLTW Learning Management System (LMS) and professional learning communities; assessments; unlimited required software licenses; required online, on-demand readiness and ongoing teacher professional development; student recognition and scholarship opportunities; reporting tools; and school and technical support. Each school is required to pay this annual participation fee. ○ Teacher laptop(s), student computers, a printer, & a projector that meets or exceeds minimum PLTW specifications.

11	Teachers attend Core Training at University of Iowa	<p>Specific training information will be provided through the registration process & PLTW LMS.</p> <ul style="list-style-type: none"> • PLTW Engineering: POE Core Training starts on Sunday, July 20 & ends on Friday, August 1, 2014. • A typical training day runs from 8am to 5pm with optional (usually necessary) night sessions. • Participation in a Core Training event requires commitment outside of scheduled class time. Plans should be made to accommodate the demands of the courses.
12	Teacher Passes/Does Not Pass PLTW Engineering Core Training	<ul style="list-style-type: none"> • Teacher Passes PLTW Engineering Core Training <ul style="list-style-type: none"> ○ Teacher is automatically enrolled in course-specific ongoing training & receives access to the teacher version of the PLTW course. • Teacher Does Not Pass PLTW Engineering Core Training <ul style="list-style-type: none"> ○ Option 1. Teacher loses access to all training & teacher-related course resources and must retake Core Training. ○ Option 2. Teacher is placed on a Professional Development Plan (PDP) which details next steps. Access to PLTW resources must be outlined within the PDP & requires approval from the Affiliate University, the PLTW Engineering Course Master Teacher and PLTW.
13	What Does The Following Mean? “All Scale-Up award commitments for FY 2015 (academic year 2014-15) are contingent on continued funding at the sufficient level by the Iowa legislature.”	<ul style="list-style-type: none"> • The Governor’s STEM Advisory Council operates on legislated appropriated dollars. At this time, the Education Reform is sitting in the House & the Senate of the Iowa Legislature. The funding works very similar to school’s allowable growth funding, which is also yet to be determined. • The Governor’s STEM Advisory Council does not anticipate a problem with receiving the appropriated amount. PLTW, however, would like you to be aware of the possibility that funding might not occur as well as the reality that the award covers a good percent of the funds needed to implement the PLTW Engineering: POE course. <ul style="list-style-type: none"> ○ If Scale-Up funding doesn't occur, schools would need to decide if they will continue implementing PLTW Engineering plans on their own. This would require that schools pay for the teacher’s PLTW Engineering: POE Core Training tuition (\$2,300), the PLTW Engineering VEX Robotics Kits, & all other previously determined necessary expenses that were not included in the PLTW Engineering Scale-Up award.
14	Ongoing Current & Future PLTW Support	<ul style="list-style-type: none"> • Kimberly Glenn, PLTW Director of School Engagement, will be the main PLTW Iowa Scale-Up contact. Feel free to contact her anytime with your PLTW Scale-Up questions at kglenn@pltw.org. • Once the Scale-Up funding has been approved, and PLTW has the complete list of PLTW Engineering: POE-funded schools, you will receive further communications, including a welcome letter and next steps. • The expanded Iowa PLTW Team is also available to help you as you move forward with your program’s implementation and sustainability plans.

PLTW Contact Person:

Kimberly Glenn, PLTW Director of School Engagement

kglenn@pltw.org

UI College of Engineering Core Training Institute Contact Person:

Kandace Munson, Iowa PLTW Affiliate Assistant

kandace-munson@uiowa.edu

Website to View Program & Standards and Objectives Alignment:

- Project Lead The Way: www.pltw.org
- PLTW Standards & Objectives Alignment Tool: <http://alignment.pltw.org/>

Project Lead The Way Partnership Team Guidebook:

<http://www.pltw.org/sites/default/files/PLTW%20Partnership%20Team%20Guidebook%202012-13%20FINAL.pdf>

Project Lead The Way YouTube Page

<http://www.youtube.com/user/TeamPLTW>

Program Videos:

- Project Lead The Way Video
<http://bcove.me/iz1xtg6r>
- Toppenish High School - Success Through PLTW:
<http://www.youtube.com/watch?v=u1W9CO2KvvQ>
- Dr. Vince Bertram on PLTW at Research Hearing
<http://www.youtube.com/watch?v=FdwePJLqqaM>
- Girls in Engineering
<http://www.youtube.com/watch?v=Ytax6qmzsi8>

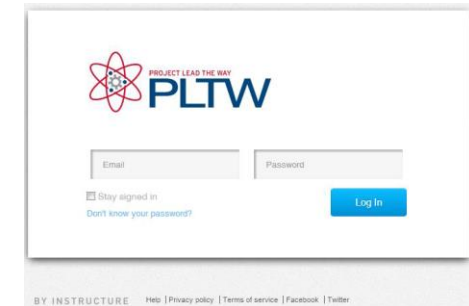
PLTW Engineering: Principles Of Engineering (POE) Video From—

Ankeny Centennial High School, Ankeny, IA

<http://youtu.be/5ZLc15Ypfmk>

How do I access my PLTW course in the LMS?

A user account within the PLTW LMS has been set up for you by PLTW. To log into the LMS, you will need to establish a password for your account by following the directions below.



1. Go to the PLTW LMS at: <https://pltw.instructure.com/login>
2. Click the "Don't know your password?" link at the bottom left of the sign-in window.
3. In the next window, enter your school email address. Your school email address is your user name.
4. Select Request Password. Check for an email from "Instructure Canvas notifications@instructure.com" which contains a link to set a new password. If you do not receive this email, check your spam filter or "junk" email folder.
5. Follow the link in the email to update your new password.
6. Log into the PLTW LMS <https://pltw.instructure.com/login>
7. Navigate to your course by hovering your mouse over Courses on the top of the screen.



8. Select the link to your specific course in the drop-down list & you will be routed to your Readiness & Core Training home page.
9. Play the Welcome Video embedded in the home page for more information on how to get started & navigate in your new PLTW Professional Development course.